

**IMPROVED SELF-ALIGNED CONTACT PROCESS  
IMPLEMENTING BIAS COMPENSATION  
ETCH ENDPOINT DETECTION AND  
METHODS FOR IMPLEMENTING THE SAME**

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**ABSTRACT OF THE DISCLOSURE**

- A method for enhancing the fabrication process of a self-aligned contact (SAC) structure is provided. The method includes forming a transistor structure on a surface of a substrate. The method also includes forming a dielectric layer directly over the
- 10 surface of the substrate without forming an etch stop layer on the surface of the substrate. Also included in the method is plasma etching a contact hole through the dielectric layer in a plasma processing chamber. The method also includes monitoring a bias compensation voltage of the plasma processing chamber during the plasma etching process and discontinuing the plasma etching process upon detecting an
- 15 endpoint signaling change in the bias compensation voltage.

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